placebo in patients with systemic lupus erythematosus, few studies renewed interest for this molecule.

We hypothesised that applying new SLE response criteria in EXPLORER study, we could show rituximab efficacy. Our objective was to reanalyse EXPLORER trial’s data using four newly described SLE response criteria.

**Methods** In our reanalysis, rituximab efficacy was assessed at week 52 using 4 criteria: SRI-4 (Systemic lupus erythematosus Responder Index) with and without a concomitant oral corticosteroid tapering objective of <10 mg at months 6 (SRI-4 with or without OCS tapering), Lupus Low Disease Activity Score (LLDAS) and BILAG-based Combined Lupus Assessment (BICLA).

**Results** Data from all 257 patients were available. There was 234 women (91%) with a mean age of 40, 3 years among which 177 (69%) received hydroxychloroquine.

At week 52, SRI-4 response rate was 27,2% in the rituximab group vs 22,7% in the placebo group (p=0.43); SRI-4 with OCS tapering was 16% in the rituximab group vs 13.6% in the placebo group (p=0.62); LLDAS was 16% in the rituximab group vs 12.5% in the placebo group (p=0.46) and BICLA was 15.4% in the rituximab group vs 15.9% in the placebo group (p=0.91).

Subgroup analyses demonstrated a trend for better efficacy of rituximab compared to placebo in the subgroup of patients co-treated with methotrexate: SRI-4 of 30.6% in the rituximab group vs 12% in the placebo group (n=74, p=0.08). This trend was not found in the subgroup of patients co-treated with azathioprine or mycophenolate. In the subgroup of patients with a BILAG A/B in haematological system or vasculitis at baseline, there was a significantly higher SRI-4 response rate with rituximab: 28.6% vs 5.3% in the haematological logical group (p=0.047) and 39.3% vs 0% in the vasculitis group (p=0.037).

**Conclusions** Our study confirms the results from the original EXPLORER Study. However, subgroup analysis suggests that patients with haematological or vasculitis involvement might benefit from rituximab. Efficacy in the subgroup treated with methotrexate is likely to be due to a lesser bias of concomitant immunosuppressive medication compared to azathioprine and mycophenolate.

**S6d – Immunopathogenesis II**

**S6D:4 ANTIBODIES TO MYELIN OLIGODENDROCYTE GLYCOPROTEIN IN PATIENTS WITH SLE ARE ASSOCIATED WITH CENTRAL NERVOUS SYSTEM INVOLVEMENT: AN UNBIASED PILOT STUDY OF THE SWISS SLE COHORT STUDY (SSCS)**

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**Background** Nervous system involvement in systemic lupus erythematosus (SLE) is mediated either through autoimmune vascular or inflammatory processes. The aetiology leading to inflammatory processes to date remains largely elusive. Given that the pathophysiologic hallmark of SLE is B cell hyperreactivity, we hypothesised that antibodies against components of the central and peripheral nervous system might be present in the serum and contribute to inflammation/demyelination in these patients.

**Purpose** To determine the prevalence of a broad panel of novel and known nervous system (NS)-directed antibodies in a large, unbiased cohort of patients with systemic lupus erythematosus (SLE) in the Swiss Lupus Erythematosus Cohort Study (SSCS).

**Methods** This retrospective pilot study included 174 patients in a cross-sectional analysis and 104 patients in a longitudinal study. Antibodies against 12 NS-antigens (myelin oligodendrocyte glycoprotein (MOG), neurofascin 186 (NF186), aquaporin-4 (AQP4), N-methyl-d-aspartate receptor (NMDAR), AMPA-receptor subunit 1 and 2 (AMPA), gamma-aminobutyric acid B receptor (GABABR), Glycin-receptor (GlyR), metabolic glutamate receptor 5 (mGLUR5), glutamate decarboxylase 65 (GAD65), voltage-gated potassium channel (VGKC) complex antibodies (contactin-associated protein-like 2 (CASPR2), Leucine-rich glioma inactivated 1 (LGI1)), and dipeptidyl-peptide-like protein 6 (DPPX) were screened with cell-based assays and correlated with clinical and diagnostic findings.

**Results** 23/174 patients harboured antibodies against MOG (n=14), NF186 (n=6), GAD65 (n=2), AQP4 and GlyR (n=1), of which 13 showed clinical symptoms of NS involvement that resembled the syndrome associated with the antibody. Nine patients harbouring antibodies have remained clinically asymptomatic to date, while another patient was lost to follow-up. Antibodies against MOG were those found most frequently (8%) and their titer correlated with the severity of neurologic involvement. The frequency of neuropsychiatric SLE (NPSLE) was much higher in the NS-antibody-positive patients (43%; 83%, 100%, 0% versus 14%).

**Conclusions** Antibodies against MOG, NF186, GAD65, AQP4 and GlyR are found in patients with SLE and NS involvement, of which MOG-antibodies are the most prevalent. This is the first large, unbiased study to screen for a broad panel of anti-NS antibodies. Screening for these antibodies could serve as a predictor and biomarker for inflammatory NS involvement in NPSLE and potentially aid in tailored treatment decisions.

**S6D:5 ANTIPHOSPHOLIPID ANTIBODIES DIFFERENTIALLY REGULATE THE EXPRESSION & ACTIVITY OF THE LYOSOMAL PROTEASES WITH EFFECTS UPON MONOCYTE AUTOPHagy**

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10.1136/lupus-2018-abstract.38

**Purpose** Antiphospholipid antibodies (aPL) activate monocytes in antiphospholipid syndrome (APS), although the precise mechanisms by which this activation occurs are not fully understood. We have identified several novel protein targets using proteomic analysis of human monocytes treated with APS-IgG. Amongst these novel targets lysosomal proteases cathepsin B and D were identified. The balance between different cathepsins is important in protein degradation,
apooptosis and autophagy. Reduced cathepsin B and D with increased cathepsin L is a phenotype suggesting reduced autophagy. Dysregulation of autophagy may be important in the pathogenesis of APS. Therefore, we aimed to determine the effect of aPL on monocyte cathepsin balance and autophagy.

Methods Healthy control (HC) monocytes were treated with 200 μg/ml of IgG purified from (n=9) patients with APS-IgG or (n=9) HC-IgG for 6 hour. Cathepsin B and D expression were measured by western blot. Cathepsin D, B and L activity were measured using fluorescence-based assays. Intracellular proteolytic activity was determined using DQ-BSA.

Results Consistent with our previous proteomic analysis, western blots confirmed that cathepsin B and cathepsin D were down-regulated in monocytes treated with APS-IgG compared to HC-IgG. Similarly, cathepsin B and D activities were significantly reduced in monocytes treated with APS-IgG (p=0.0188 for B, 0.0323 for D). In contrast, cathepsin L activity was increased in monocytes treated with APS-IgG (p=0.0106). We then examined cathepsin activity in monocytes from patients with APS. Cathepsin L activity was increased significantly when these monocytes were treated with APS-IgG compared to HC-IgG (p=0.0257).

Lysosomal proteolysis is a key process in the late phase of autophagy. We therefore exposed HC monocytes to IgG, treated them with GM-CSF overnight and tested their intracellular proteolytic activity. APS-IgG reduced the lysosomal activity of GM-CSF-treated monocytes whereas HC-IgG had no effect.

Conclusions We found that APS-IgG regulate the expression and activity of lysosomal proteases cathepsins B/D and cathepsin L in opposite directions. Consistent with this finding, APS-IgG reduced lysosomal proteolysis in monocytes. Additional experiments are now underway to increase our understanding of how modulation of cathepsin activity and autophagy may be important in the pathogenesis of APS and to provide new therapeutic targets.

INHIBITION OF EIF4A TRANSLATION INITIATION AMELIORATES LUPUS MANIFESTATIONS

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Systemic Lupus Erythematosus (SLE) is an autoimmune disease characterised by a loss of immunological tolerance, production of auto-antibodies and inflammatory damage in multiple organs. We have tested the effect of a novel anti-inflammatory peptide, a fragment of alpha-1-antitrypsin, termed UBE on two animal models of SLE, MRL/lpr and NZBW/F1 mice. Treatment of MRL/lpr mice with low dose of UBE (1 microgram/kg) at early stage of disease namely, 12 weeks old mice, caused significant reduction in proteinuria and mortality. The beneficial effect of the peptide was corroborated by histological examination. Furthermore, a significant reduction in serum IL17, IL12 and anti dsDNA antibodies was observed in the UBE-treated mice. Isolated CD4 cells incubated with the peptide showed similar cytokine profile. Decreased levels of double negative CD4+CD8- and B220+ cells were determined in lymph organs of UBE-treated animals. Similar effects were observed with NZBW/F1 mice, namely, the peptide (0.3 microgram/kg) caused significant reduction in proteinuria and kidney and lung damage as determined in histopathological examination. The highly important SLE serum factor B-lymphyocyte stimulator (BlyS or BAFF) was dramatically decreased in UBE-treated mice. Spleen and blood double negative CD4+CD8- and serum IL6, IP10 and MCP1 were significantly reduced in peptide-treated mice. The beneficial effects of UBE suggest this peptide as potential drug for SLE.